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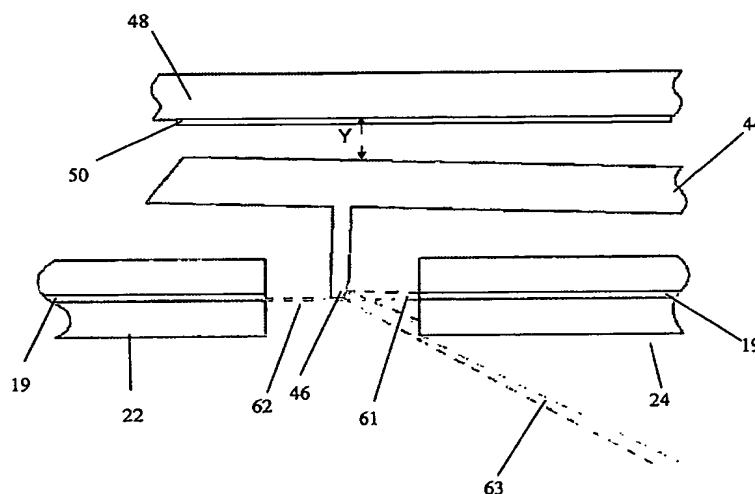
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(54) Title: A DEVICE AND A METHOD FOR INTEGRATED MULTI-CHANNEL MEMS VARIABLE OPTICAL ATTENUATORS



(57) Abstract: A single or multi-channel MEMS (Micro Electro Mechanical Systems) variable optical attenuator employing a novel construction method. An optical fiber or waveguide is secured on a substrate, for example in a groove formed in the substrate, and is then cut to an appropriate depth (by dicing, etching, laser cutting or any other means) for ensuring alignment between the two fiber segments thus obtained, thus eliminating prior art misalignment problems. After securing and cutting of the fiber, a MEMS shutter is arranged for dynamically controlled positioning in the gap, to block any required amount of the power of an optical signal that propagates in the gap between the optical fiber segments. The amount of blocking is controlled using electrostatic actuation or by any other means, to provide the instantaneously required attenuation. An integrated power monitoring mechanism may be used to establish the shutter position (independently for each shutter in the case of multi-channel array) so that output power remains at a predetermined value.

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